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CHINNING BAR AND FOOT SUPPORT
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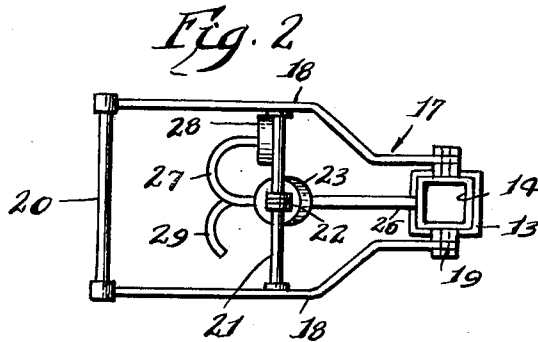
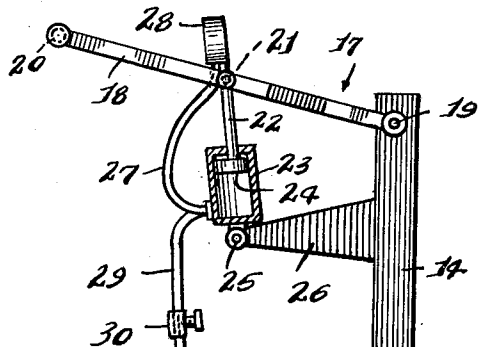
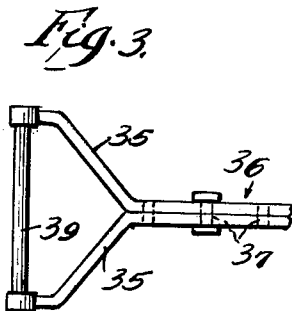
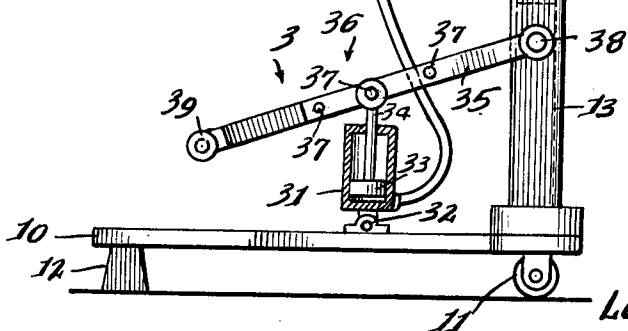


Fig. 1.

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EXERCISER WITH HYDRAULICALLY INTER-CONNECTED CHINNING BAR AND FOOT SUPPORT

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My invention relates to an exercising device for use in developing, strengthening and improving the tone of the arms, chest and back muscles.

A common type of gymnasium apparatus for this purpose is the so-called chinning bar which is positioned for grasping by a person who endeavors to lift his body by pulling on the bar. Many people are unable to perform this feat due to age, weight or weakness.

It is therefore the principal object of the invention to provide an exercising device of the chin bar type which also includes a foot bar or rest on which the person stands plus an arrangement whereby the downward pull on the chin bar is transmitted and conditioned to apply an upward push on the foot bar having a selected ratio value to the pull.

In the drawing:

FIG. 1 is a side elevation of the device, partly in section.

FIG. 2 is a top plan view omitting the base, foot bar and immediately associated parts.

FIG. 3 is a fragmentary view of the foot bar looking in the direction of the arrow 3 in FIG. 1.

Referring to the drawing, the numeral 10 designates a movable platform which at one end may be carried on a suitable number of rollers 11 and at the opposite end on fixed supports 12, only one roller and support being shown. Extending upward from one end of the platform 10 is a fixed hollow tube 13 which is shown as being four-sided although shape is not important.

Slidable in the tube 13 is a standard 14 which is adjustable to accommodate the device to persons of varying height by means of a pin 15 which is insertable through an aperture 16 selected from a group of such apertures spaced along the tube 13 and which apertures register with similar apertures (not shown) in the standard 14, this type of adjustment being well known. One end of a yoke 17 has the arms 18 thereof pivotally connected at 19 to the upper end of the standard 14 for up and down movements. At the opposite end of the yoke 17, the arms 18-18 thereof are further spaced to carry therebetween a chinning bar 20 and also bridged between the arms 17-17 and spaced from the chinning bar 20 is a strut 21.

One end of a piston rod 22 is pivotally connected to the strut 21 and the opposite end extends slidably through the upper end wall of and into a cylinder 23 for affixation to a piston 24. The opposite and closed end of the cylinder 23 is pivoted at 25 to an arm 26 extending transversely from the standard 14. The lower end of the cylinder 23 connects by a hose 27 with a suitable gauge 28 which is calibrated as presently stated and by a hose 29 which preferably includes an adjustable valve 30 with the lower end of a cylinder 31 and which lower end is rockably mounted at 32 on the platform 10. Slidable within the cylinder 31 is a piston 33 affixed to a piston rod 34 which extends upwardly through the upper end of the cylinder 31 for pivotal connection to the arms 35-

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35 of a yoke 36 in any one of a plurality of positions generally designated by the numeral 37.

The attaching positions of the piston rod 34 to the yoke 36 are located intermediate the ends thereof where the arms 35-35 may abut as in FIG. 3. At one end of the yoke 36, the arms 35-35 are slightly spaced for pivotal attachment at 38 to the tube 13 and at the opposite end, the arms 35-35 are further spaced for the bridging therebetween of a foot bar or rest 39.

The cylinders 23 and 31, and the hoses 27 and 29 comprise a hydraulic system that may be conveniently filled with a suitable oil. It will be apparent that with the yoke 36 in the lowermost position shown in FIG. 1, which position is the one assumed by the yoke 36 when a person first stands on the foot bar 39, the yoke 17 will occupy its uppermost position as also shown in FIG. 1 due to the oil pushed out of the cylinder 31 into the hose 29 and which is accompanied by a transfer of oil from the hose 29 to fill the cylinder 23 below the piston 24, the hydraulic system being closed.

For the purpose of explaining the operation and principle of the device and by way of example only, it will be assumed that the radius of the chinning bar 20 from the pivot 19 is two feet, that the radius of the pivot connection 21 from the pivot 19 is one foot, that the radius of the middle pivot connection 37 from the pivot 38 is one foot, and that the radius of the foot bar 39 from the pivot 38 is two feet.

Therefore and since the yokes 17 and 36 function as levers, if a person standing on the foot bar 39 and grasping the chinning bar 20 exerts, by way of example, a downward pull on the chinning bar 20 of 100 pounds, expressed as a total force, a downward push of 200 pounds will be applied to the piston rod 22. The latter force will move the piston 24 downward and through the oil in the system the piston 33 upward to apply an upward push of 200 pounds to the yoke 36 at the middle pivot connection 37. At the foot bar 39, however, the upward lift on the person's weight is 100 pounds. The gauge 28 is preferably calibrated in pounds and, if placed in the position shown in FIG. 1, indicates the force exerted on the chinning bar 20. As an alternative position, the gauge 28 may connect with the hose 29 between the valve 30 and the cylinder 31 and will then, depending upon the connection of the piston rod 34 to the yoke 36, indicate the amount of assistance provided to lift the person. The valve 30 is adjustable to regulate the speed of oil transfer through the hose 29.

I claim:

1. An exercising device comprising a foot bar for supporting a person in standing position and carried by a first lever pivoted at one end remote from the foot bar, a chinning bar above the foot bar for grasping by the person and carried by a second lever pivoted at one end remote from the chinning bar, and a hydraulic system connecting intermediate parts of the levers for changing a downward pull on the chinning bar by the person into an upward thrust of the person weighted foot bar and including movable, first and second, pressure applying means respectively connected to the first and second levers, and conduit means connecting the first and second, pressure applying means.

2. An exercising device as defined in claim 1 wherein the first pressure applying means connection to the first lever is adjustable to provide a selected upward thrust on the foot bar.

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3. An exercising device as defined in claim 1 wherein the first and second, pressure applying means include first and second pistons connected to the first and second levers, respectively, and reciprocable in associated cylinders and the conduit means connects the lower portions of the cylinders whereby a movement of one piston in one direction effects a movement of the other piston in the opposite direction.

4. An exercising device as defined in claim 3 wherein the connection of the first piston to the first lever is adjustable to provide a selected upward thrust on the foot bar.

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5. An exercising device as defined in claim 3 wherein the conduit means includes a valving control on the passage of liquid between the cylinders.

References Cited in the file of this patent

UNITED STATES PATENTS

1,598,940 Smith ----- Sept. 7, 1926

FOREIGN PATENTS

158,684 Germany ----- Feb. 22, 1905

75,639 Norway ----- Sept. 26, 1949